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| **Abstract:** |  |
| We designed an optical communication network that incorporates both OTDM and WDM techniques. The combination of OTDM-WDM provides up to 240 Gbit/s data transfer rate with a maximum of 384 channels for communication length of 780 km in our designed architecture. Bitrate of each channel is 625 Mbit/s, which follows optical signal hierarchy OC-12, STS-12 (SONET ANSI), and STM-4 (SDH CCITT) and the communication is done by single mode fiber of 50 km and dispersion compensation fiber of 10 km followed by one optical amplifier gain in each span. Bit error rate remains significantly low while transmission distance for the OTDM is 12300 km at a BER <; 10 -12 , and for the hybrid OTDM-WDM it is 780 km at a BER <; 10 -18 both measured under 128 bits sequence length and without any forward error correction. Three compression stages are used for 8 channels each in order to minimize the gap between bits, and to utilize the space for more channels at a specific time window, which allows to accommodate a total number of 384 channels in our hybrid OTDM-WDM network.. | |